

ditions, and to diagnose the small emboli in order to take the proper steps to prevent a recurrent and fatal embolus.

1136 West Sixth Street.

DISCUSSION

DONALD J. FRICK, M. D. (1136 West Sixth Street, Los Angeles).—This is an excellent and timely review of present knowledge concerning pulmonary embolism. The statistics from both the General Hospital and the Children's Hospital are of extreme value in pointing out an important factor in the production of emboli, *i. e.*, slowing of the blood current. Children, during their illnesses, move about. Their circulation is usually at an optimum. Their heart muscles are competent. As age advances, we have the degenerative changes of the heart muscle, which slow the blood flow both in the periods of shock and mobilization during medical and surgical illnesses.

The realization of the danger of even moderate cardiac damage, plus temporary immobilization of portions of the body, especially the pelvis and the lower limbs, will make us more careful in the handling of all our patients—seeing that the heart is improved to its optimum and passive or active motion of the extremities is made a routine. Thrombi form as a result of retarded blood flow. From thrombi come emboli.

Early diagnosis is a necessity, both from the standpoint of proper treatment and the prevention of later emboli. This point is well brought out, and should at all times be kept in mind in the cure of this hazardous accident.

Every physician, whatever his trend, should have the fullness of knowledge regarding pulmonary embolism, its diagnosis, prevention, and treatment. This emergency will come to all of us, and only by full knowledge can we save lives.

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ROY E. THOMAS, M. D. (1136 West Sixth Street, Los Angeles).—In this paper by Doctors Ware and Bullock, the importance of pulmonary embolism to both surgeon and internist is indicated in the very first paragraph. Any condition which, in a five-year period, is responsible for nearly 250 deaths in a single hospital, deserves most serious consideration.

Most of us, I fear, have been accustomed to consider pulmonary embolism a sequel to some surgical procedure or trauma. The authors show that surgery is responsible for less than one-half the cases in their series, and in the majority of these there was the additional factor of suppuration.

I can add nothing to the preventive measures advocated in the paper, but I would emphasize the importance of avoiding elective surgery in patients past middle life who are known to have impaired circulation. Also, in those cases of thrombosis of the saphenous vein, resulting from trauma or infection, we can urge the ligation of the vein in the groin. These cases are not common, but fatal embolism does occasionally occur when the free end of the snake-like thrombus, which has been waving in the blood stream, breaks off.

Once embolism occurs, the outcome usually depends on the size and location of the blocked vessel and the previous condition of the patient. In addition to the therapeutic measures advocated by the authors, perhaps the immediate intravenous use of papaverin deserves mention. This treatment was advocated by Pal in 1914. If it be true that the point of lodgement of an embolus depends on spasm of the arterial wall rather than on the diameter of the vessel relative to the size of the embolus, then the use of a quickly acting antispasmodic drug such as papaverin is certainly rational. Collins has recently reported a series of ten cases so treated, with only one fatality. This would be encouraging, indeed, if one could be sure that the diagnosis of pulmonary embolism was correct in every case.

In this connection the following case is of interest. A patient was operated upon at the Los Angeles General Hospital for perforated duodenal ulcer. Several days later, while apparently convalescing, he suddenly went into shock, with all the signs of pulmonary embolism. He was given papaverin, grain one, intravenously, with prompt and striking improvement. A few days later an apparently identical attack occurred, which failed to respond

to the same treatment. Autopsy showed no evidence of pulmonary embolism or other pathology to explain the sudden death.

Recently, a patient on one of the medical wards was allowed out of bed for the first time following lobar pneumonia. He walked a few steps and collapsed, with all the classical symptoms of pulmonary embolism. At the autopsy no embolism was found.

I cannot close this discussion without a word of condemnation for the Trendelenburg operation. I quote Evarts Graham: "When one considers the chance of error in wrongly interpreting the symptoms, and, therefore, in making an erroneous diagnosis of pulmonary embolism, the possible enthusiasm for the operation necessarily wanes. Still more must one's enthusiasm diminish when it is considered that not only is it necessary to establish a diagnosis of pulmonary embolism, but also to determine that in the particular case the embolism will prove fatal unless the operation is performed. Every surgeon of large experience has occasionally seen patients recover spontaneously in cases of embolism which seemed at the outset as if they would be fatal. After all, the operation is a very serious procedure. Considering these facts, one cannot help wondering whether, if it gains popularity, more patients will not die from the operation than would die from pulmonary embolism alone."

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PHILIP H. PIERSON, M. D. (490 Post Street, San Francisco).—Doctors Ware and Bullock have made a very thorough survey of the question of pulmonary embolus and have supplemented this study with a careful investigation of considerable autopsy material.

There are two points which I would like to emphasize: first, sterile emboli often go into normal lungs without any complications save for a transient spike of fever and local congestion, which quickly clear. On the other hand, when a sterile embolus is lodged in a congested or infected portion of the pulmonary field, trouble generally develops. I think a great many small, sterile emboli lodge in the lung, and we have no knowledge of their occurrence.

The second point that I would like to add is that, after a lung has been compressed for some time by fluid, small thrombi often form in the pulmonary vessels. If a large amount of this fluid is evacuated at one time, in these long-standing cases, emboli are at times set free and either cerebral or visceral damage takes place. It is safer then, in long-standing fluids, to take off not more than 500 to 700 cubic centimeters at a time.

PSYCHOSIS IN THE MENTALLY DEFECTIVE*

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DISCUSSION by Ruggles A. Cushman, M.D., Talmage; Edward W. Twitchell, M.D., San Francisco.

A PSYCHOSIS is a much more frequent complication of mental deficiency than is generally believed. Frequently a patient, who comes to the attention of the court or the doctor because of peculiar actions or inability to adjust in the community, is given a mental test, and when found to be subnormal is dismissed as feeble-minded and all his symptoms ascribed to this condition, while in reality he may also be suffering from a psychosis, and it is the psychosis that is causing his inability to adjust. He may have been getting along well enough until his mental upset occurred. This patient needs the care afforded by a mental hospital. If he is returned home his difficulties

* From the office of the Medical Director, Sonoma State Home.

Read before the Neuropsychiatry Section of the California Medical Association at the sixty-fifth annual session, Coronado, May 25-28, 1936.

continue, while if he be sent to an institution for mental defectives or to a boarding school he will not fit in with other defectives and will continue to be a problem until he finally is sent to a mental hospital or recovers from his psychosis.

LIMITATIONS OF INSTITUTIONS FOR THE MENTALLY DEFECTIVE

Institutions for the mentally defective are not equipped to care for psychotic aments. The majority of the patients at such institutions require custodial care and training from which the disturbed patients cannot benefit because of their mental condition; while their behavior taxes the facilities of the institution in caring for them and disturbs the routine of the ward on which they are placed. These patients frequently keep those otherwise well behaved in an uproar, and are unsatisfactorily treated because the attendants are not usually trained in the care of psychotic patients.

DETERMINATION OF THE MENTAL STATUS IMPORTANT

Therefore, in order that our state and private institutions may function at their best, care should be taken to ascertain the exact mental status of a person before it is decided where he should be sent. Merely because he has a low intelligence quotient does not mean that his chief complaint is mental deficiency.

True, it is difficult to be sure just what ails a patient seen in the detention home, and who can be observed only for a short time before his disposition is decided upon. However, a trained psychiatrist can be fairly sure of his diagnosis, and will avoid many more errors than can a person whose practice encompasses chiefly other fields of medicine. Therefore, it would be well for the judge or person who has the disposition of the case in hand to have a competent man see the patient and give him a chance to observe him and be guided by his recommendation.

With reference to the mental rating arrived at by a psychometric reading, it must be remembered that a person with normal mentality will, when acutely disturbed, or when the condition is due to deteriorating mental disease, test in the feeble-minded group. While his intelligence quotient fits in this group, still he should not be treated with that group because his intelligence quotient is the result of, and not the cause of, his trouble.

TWO STATE INSTITUTIONS FOR THE MENTALLY DEFICIENT IN CALIFORNIA

There are two state institutions for the mentally deficient in California—one situated in northern California, at Eldridge, which was established in 1887 in another part of the state, and which on April 1, 1936, had an actual population of 2,630, representing an overcrowding of 21 per cent. The other state institution is situated in the southern part of the state, at Pacific Colony, and on April 1, 1936, had an actual population of 734, representing an overcrowding of 18 per cent. The total population of the two institutions on this date was 3,364. Also, there is a long list of over 2,000 patients awaiting commitment to these two insti-

tutions, and there are numerous private homes for the care of such children, while many are cared for in their own or foster homes.

THREE MAJOR GROUPS OF PATIENTS

The great majority of these patients may be divided into three large groups:

The obviously defective, who for one reason or another cannot be cared for in their community;

The epileptics;

And the defective delinquents who are sent here rather than to prison or correctional school.

Forming a fourth much smaller group, but still large and troublesome enough so that they are demanding ever-increasing attention, are the psychotic aments with a problem all their own. Because they are psychotic they do not belong among the stable and adjusted feeble-minded, nor, because of their basic deficiency and frequently their age, do they belong among the adult group cared for in state hospitals. A special institution for their care is a pressing necessity, which we hope will be met in the near future.

Aments fall heir to the same psychoses found among the general population. Due to their short-life expectancy, emphasis is placed on those psychoses prone to occur in adolescence and early adult life. Also these patients are subject to many transient periods of mental upset which cannot be readily classified, and which are accordingly labeled psychoses associated with mental deficiency. While all the recognized types of psychoses occur in aments, their symptoms and signs are frequently considerably altered because of the associated deficiency. However, the same etiologic factors and symptomatology are in evidence here as they are among mental patients who are not defective.

DIAGNOSIS OF TYPES OF MENTAL DISORDER

Diagnosis of the type of mental disorder is complicated by the degree of defect present. In the lower grades, only actions are available as guides to what is the condition of the mind, as the patient is very frequently unable to give the examiner information in any other way. Thus, it is largely a matter of clinical judgment as to what type of psychosis is present. The higher the intelligence quotient, of course, the more nearly the problem approaches that found in the normal population.

As to whether the patient has a definite major psychosis grafted upon his amentia, or whether it is merely a minor psychotic episode associated with the deficiency, depends upon the character of the behavior and the duration of the upset. Many of the feeble-minded have transient periods of psychic upheaval, varying from mere temper tantrums to definite psychotic episodes of short duration or to definite major psychoses.

Because of the peculiar actions of the idiot and imbecile, and the childish behavior of the morons, it is sometimes very difficult to say whether his behavior is normal for him or if he is suffering from a psychosis.

SURVEY OF THE PSYCHOSES AT SONOMA STATE HOME: JANUARY, 1930, TO JANUARY, 1936

A survey of the psychoses that have occurred at the Sonoma State Home from January, 1930, to January, 1936, shows that almost every type of psychosis tabulated by the American Psychiatric Association is there represented.

ENCEPHALITIS SEQUELAE

Of chief interest, because it is a most recent development, is the large number of cases which are the result of encephalitis with personality changes in the individual. These patients very frequently are normal until they have lethargic encephalitis, influenza, or some childhood disease. After recovery they become quite different people and are profound behavior problems. These patients undoubtedly have organic brain damage, but so far there has been very little material available for study. Their intelligence quotients remain high, but their emotions are profoundly altered. While these patients are not feeble-minded, because of their age group—usually under twenty—they are found more and more frequently in our institution because there is no place else to care for them.

Such cases are diagnosed chiefly on the behavior, which includes usually lying, stealing, sex delinquencies, extreme cruelty, resentment of all authority, total disregard of punishment, a complete candor in recounting their behavior with an emotional reaction of complete indifference and a total inability to explain why they act as they do. The history is sometimes barren of evidence of just when the encephalitis occurred. Also the neurologic evidence is usually slight and characterized by the spotty distribution of the lesions. The most familiar sequela of encephalitis, Parkinson's syndrome, is not usually found in this group. We believe that many cases placed in other classifications, especially that of psychopathic personality, really belong in this group and that these cases will assume an ever-increasing medical problem.

From January 1, 1930, to January 1, 1936, a period of six years, there have been 510 patients referred to our psychiatrist because of peculiar behavior noted in the institution. Of these cases, 287 have been found to be suffering from some form of psychosis.

PSYCHOSES BY GROUPS

1. The commonest psychoses were found to be those associated with epilepsy. As the institutions caring for the mentally deficient are the only institutions in the state caring for nonpsychotic epileptics, a large part (approximately 25 per cent) of our population is made up of these unfortunate sufferers. It is only to be expected that a group suffering from this profound nervous disorder would develop a considerable number of psychotics. The commonest mental picture is that of deterioration, a gradual development of mental dullness, slowness of association and thinking, impairment of memory, irritability, or apathy. Various accessory symptoms, paranoid delusions

and hallucinations, may be added to this fundamental deterioration. These patients are the slow-moving, thick-speaking, irritable individuals, frequently seen. They do not present much of a problem unless their hallucinations and delusions lead them to attack their fellows, when they must be segregated.

The second type of epileptic psychoses, the epileptic clouded states, is characterized preceding or following convulsive attacks by dazed reactions with deep confusion, bewilderment and anxiety or excitement, with hallucinations, fears and violent outbreaks. These are the dangerous type as, during their confused periods, they do many impulsive acts that frequently cause injury to others, and of which the patient is wholly unconscious and for which he develops a complete amnesia.

Other epileptic types of psychoses show paranoid trends, hallucinatory states, depressions, elations, and manic attacks, with few other manifestations.

The prognosis in these cases is, of course, grave. They continue steadily downhill; and, while the psychotic episodes may be brief, they tend to recur and be prolonged.

The epileptic psychoses comprised 24 per cent or almost one-fourth of our psychotic patients.

2. The next commonest group are the dementia praecoxes, which comprised 17 per cent of our psychoses. While it is difficult to differentiate between the brief upsets frequently met with in defectives and a true dementia praecox psychosis, true schizophrenia does occur in defectives, even in the lower types where it might be thought it would not occur. In fact, when first seen, it is often hard to be sure whether the patient is primarily defective or if he has always been a praecox and has been sent to us on the basis of a low intelligence quotient due to deterioration or preoccupation resulting from the psychosis.

The various types occurred in the following frequencies: simple, three cases; hebephrenic, forty-two cases; paranoid, two cases; catatonic, two; unclassified, two. The only difference between these cases and those met with in mental hospitals is that the patients are more inaccessible and do not show the strikingly bizarre features so frequently seen. They are more frequently characterized by and diagnosed on their typical behavior so rich in mannerisms with evidences of hallucinations. Aside from the paranoid types they do not present a serious problem, as they are much better workers than the purely defective and fit in very well.

3. The third largest group includes those called psychoses associated with mental deficiency. These are usually of an acute transitory nature and most commonly have episodes of excitement with depression, paranoid trends, and hallucinatory attacks. The attacks are brief, frequently being readily brought on by minor events in their environment, and are usually readily controlled. They may be likened to the temperamental outbursts of the spoiled child, but are more deep-seated. These comprise 16 per cent of our cases.

4. The fourth group are those best grouped under the heading of behavior disorders. Our institution receives a large number of defective delinquents, many of which are found to have a definite organic basis for their behavior. They compromise 10 per cent of our series. They are caused by encephalitis, either the lethargic type or that associated with childhood diseases. In some cases, even though there is no history, the behavior is so typical that they are grouped here. Causes of these thirty-two behavior problems were as follows: lethargic encephalitis, measles, influenza, pneumonia, and pertussis. Patients presenting the typical Parkinsonian picture occasionally have associated behavior disorders, and also become frankly psychotic. The commonest psychosis in this latter group is a psychoneurosis. However, depressions and melancholias are also found. Evidence of deterioration also occur in a few cases.

This group presents a serious problem in their care and training, as discussed elsewhere.

5. The fifth group is that of the manic depressive psychoses, which comprise 6 per cent of our series. This psychosis occurs in the higher groups and more frequently are represented by the manic phase than by the depressed phase.

This group is a complete misfit in our set-up, and must be segregated early to avoid damage to themselves and to others.

6. The sixth group is that of the psychoneuroses, comprising 5 per cent of our series. They represent the usual features and occur among the higher grades of our patients, as would be expected. They are serious problems and cannot be well cared for here.

Psychopathic personalities comprised 5 per cent of our cases, and of these only one-fourth had periods of upset which placed them as definitely psychotic, while the rest were made up of sexual pervers and emotional abnormalities.

SYPHILITIC AND ALCOHOLIC FACTORS

Syphilis played a part in only 4 per cent of our psychoses, and of these only one-third were juvenile paretics. Trauma accounted for 2 per cent of our cases, three cases showing post-traumatic personality disorders and two cases showing post-traumatic mental deterioration. Psychoses were associated with somatic disease (tuberculosis) in two cases, and there was one case of senile psychosis developing in an old defective who had spent the greater part of her life in our institution.

Among the psychoses we did not see were the alcoholic psychoses and the involutional melancholias. Alcoholism plays a minor rôle in the lives of our patients as we see them. Their drinking habits are due to the effect of their environment on their mentality, and alcoholism is only an incidental feature, seemingly taking no deep hold upon them.

The intelligence of this entire group of 287 cases by psychometric examinations showed a range from the idiot to the normal, as per our psychologist's report in his routine examinations on admission and some on reexamination, as indicated.

GENERAL CLASSIFICATION

The following were the general classifications as we group them with the range and average intelligence quotient:

	Range	Average
Psychopathic personalities	52-89	70
Lues	49-57	53
Psychoneurosis	73-90	80
Dementia praecox	26-70	60
Manics	20-72	45
Epileptics	41-94	70
Behavior disorders	41-90	70
Psychosis associated with mental deficiency	9-70	60

Thus indicating that mental disease may be expected in any degrees of mentality, and the lower the mentality the more difficult it is to make a differential diagnosis.

TREATMENT

In general, the treatment of psychotic aments is the same as that for other psychotic patients. However, there are one or two points that I would like to stress:

First: Since the mentally defective is, on the whole, a young group, many or most of the psychoses occur in patients under twenty. For this reason, as well as the fact that any degree of amentia may be present, they are rendered misfits in mental hospitals. There should be a special ward or wards attached to mental hospitals where these patients could be cared for, and in which they could be properly segregated. When this step is taken, we will have solved, in a considerable measure, the problem of the care and treatment of these patients.

Second: The rapidly growing group of personality changes following encephalitis do not, at present, fit anywhere in our scheme of treatment. They are not psychotic in the way that most mental hospital patients are, and they are usually not yet adults and thus do not fit in the institutions for adults. Also, they are not necessarily feeble, often having a high intelligence quotient, and thus they do not fit with the regular defective type. Again, they are such behavior problems that they are difficult to care for in an institution for mentally defective patients. The pressing need at the present time in California is a group of wards devoted to the care, according to their age group, of these postencephalitic patients.

The treatment of these patients is, as yet, only in the experimental stage. There are several clinics in this country working with these patients, and, while a few cases appear to recover and adjust satisfactorily, there is always a chance that these are only temporary cures, since many patients will do well for a few months, usually about six, and then return to their former behavior. This seems to be due to their inability for sustained interest in their environment and activities. The main plan of attack is one in which the child is removed from his home environment and placed

in a special school with twenty-four-hour supervision, with a strict regular routine and frequent changes of activity throughout the day. These children are naturally nonconformist and must be made to conform; but the method by which this can be done varies in each case. Punishment, as such, has little effect and should be discarded. In their homes these patients have been the subject of much undesirable personal attention because of their behavior, and have been singled out from the rest of the family. The bad effects that this treatment has had on the child must be overcome.

DISPOSITION OF THE PATIENTS AT SONOMA STATE HOME

The disposition of these patients up to this time might be of interest, as we are all concerned with the end-results of our treatments, whatever they may be.

TABLE 2.—Disposition of the Patients at the Sonoma State Home

	Per Cent
Transferred to other institutions	48
Retained (due to psychosis being mild, or where we feel their deficiency predominates over their psychosis)	49
Transferred and returned, as recovered from their psychosis or greatly improved and their deficiency only remains or at least predominates over their psychosis	1.3
Paroled	1.2
Died	0.5

This group have little or no sense of right and wrong, and do many impulsive things that result in harm to others. For this reason they should be segregated indefinitely until it can be ascertained that their antisocial tendencies have been curbed. Also, they need routine schooling. They are so regularly excluded from school that schooling must be provided in a special class and institution, for the facilities for the proper care of these patients and the psychotic defectives in California have yet to be provided.

Sonoma State Home.

DISCUSSION

RUGGLES A. CUSHMAN, M. D. (Mendocino State Hospital, Talmage).—We who are attempting to care for psychotic patients in the State hospitals are intensely interested in the problems of mentally defectives. While we do receive those mentally defective patients who are transferred from the homes for the feeble-minded, correction schools, etc., all psychotic patients we receive from the various counties, if they are not already mentally defective, soon lapse into that condition, after more or less of an interval, as a result of their mental storm. This defect in their mentality is almost invariably continuous. With some, of course, the advance is slow; so that after patients with this psychosis have sunk to a certain level they remain practically the same, with a more or less modified deterioration as the years go by.

Every one of these psychotic patients, after one such mental storm, never completely resumes his former mental powers. Owing to the inability of the relatives or friends of the patients to provide suitable homes, they become wards of the State. The reader may be interested in knowing that at the present time we have approximately 25,000 of these wards scattered throughout mental hospitals, homes for the feeble-minded, correction schools, etc. Quite a proportion of these patients have been under the care of the State for many years. For instance, here at Mendocino we have seven patients who have lived in this

hospital between forty and fifty years. We have approximately twenty-five who have lived here from thirty to forty years. The probability is that our average time for residence in this hospital with all patients is approximately ten years.

This all involves a tremendous expenditure on the part of the State, as, with the practice of the utmost economy, we are compelled to spend around \$225 each year per capita. In other words, the Legislature appropriates each session for the support of State hospitals for the biennium approximately \$14,000,000.

It may also interest the reader to know that the sum total of admission for all State hospitals represents a turnover of approximately one thousand patients per month. The admission of new patients and the return of old patients from parole is approximately one thousand; the discharge and parole and deaths amount to around nine hundred, leaving a surplus of about one hundred scattered throughout the various State institutions. This means that there is a steady increase in California of around one thousand patients each year who have to be provided with a suitable home and proper maintenance. This condition has caused excessive overcrowding. None of the institutions have sufficient bed capacity to care for their inmate population, making it necessary in each hospital to have some patients sleep on the floor. Up to the present time it has not been possible to overtake this excess by the erection of new buildings, so that one may readily see the problem confronting all those interested in the proper care of these State charges.

We who are engaged in State work are trying to place these psychotic and defective patients in such a bodily and mental condition that they will be capable of adapting themselves to their surroundings and conforming in action to the usages of society in so far as may be possible.

You will realize from the above that I have viewed this subject, not so much about psychoses developing in the mental defective, as I have the defectives who run along with our psychotic condition. We are aiming to get these patients out at the earliest possible date, back to homes and relatives, with a different view of life as will cause them to have less conflict in their contact with other people, even though they may be fundamentally in the mentally defective class.

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EDWARD W. TWITCHELL, M. D. (909 Hyde Street, San Francisco).—It may no doubt surprise some to learn from Doctor Butler's paper that the mentally defective may become insane. But a moment's reflection should show that just as the stupid normal may become insane, so may those who are even more stupid, and that, as a matter of fact, no degree of stupidity protects one from insanity. But the lower one goes in the mental scale the more difficult may it become to determine when the feeble-minded become insane, while a feeble-minded patient who has been docile and manageable may, by reason of a psychosis, be converted into one who is far from manageable.

Under such conditions these patients naturally add to the difficulties already great enough in dealing with mental defectives, and some way must be devised for segregating them, otherwise an entire group of inmates under good control may get out of hand. The only thing to do is to place them in a separate ward or in an institution for the insane. Now, a home for feeble-minded, not being designed for the treatment of the insane, has added responsibilities placed upon it which should be avoided if possible.

In hospitals for the insane, one of the difficulties is that so many of these patients being children, they cannot well be put in wards with adults. It is not likely that the idea of a separate institution for psychotic aments would find favor in these days when there is so much difficulty in providing funds for institutions already existing.

The most practical way out would undoubtedly be to set aside wards for psychotic aments in the State hospitals for the insane. The epileptic who becomes psychotic is always a particularly difficult problem by reason of the tendency to do violent things, and some terrible things have been done by epileptics in a postconvulsional haze. The encephalitics with character change began to show themselves as a problem soon after the great epidemic. They were especially not easy on account of the fact that

they were at times so apparently normal and it was hard to convince their relatives and friends that there was anything wrong with them.

As Doctor Butler has shown, practically all types of mental disease can be found among the mentally defective, and treatment will follow the same line. It seems to be generally admitted that the juvenile paretics fail to respond to pyretotherapy as well as do the adults.

It is well that a situation already common knowledge to those in the institutional world should be brought to the notice of the profession in general.

TRANSURETHRAL RESECTION: DOES IT REQUIRE AS EXACTING A PREOPERATIVE PREPARATION AS PROSTATECTOMY?*

By H. C. BUMPUS, JR., M.D.

AND

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DISCUSSION by H. A. R. Kreutzmann, M. D., San Francisco; A. M. Meads, M. D., Oakland; J. C. Negley, M. D., Los Angeles.

THROUGHOUT the development of prostatic surgery, overemphasis of some particular type of operation or of some special phase in the preparation or the after-care of the patient, has characterized discussions of the subject. The pioneer surgeons earnestly debated the relative merits of partial and complete enucleation. The next generation heatedly argued the advantages and disadvantages of perineal or suprapubic prostatectomy. Today we are involved in acrimonious discussion of a still newer method of treatment. Such divergence of opinion is indicative of a healthy situation. For, when once all are in agreement upon any subject, progress is likely to cease.

THEORY

At the turn of the past century the techniques of prostatectomy were as numerous as the surgeons who attempted it, and results were extremely unsatisfactory, mortality running as high as 90 per cent. Improvement in this situation was brought about by recognition of the importance of preoperative treatment. The main factors contributing to this improvement were: (1) The practice of preliminary drainage; (2) the development and application of tests of renal function; and (3) a realization of the importance of the control of infection.

The exact time when the importance of preliminary drainage was first recognized is not known, but in the initial volume of the *St. Paul Medical Journal*, dated 1889, Arthur T. Cabot, in an article entitled "Drainage of the Bladder Through a Catheter in the Urethra," wrote as follows:

It is often surprising to see how quickly the character of the urine changes for the better under this treatment. Let us take now an even more serious case, in which the obstruction in the prostate has led to a dilatation of the ureters and pelves of the kidneys. With this condition is usually associated a more or less pronounced degree of interstitial nephritis and consequent interference with the excretory function. The urine under these circumstances

is abundant, but of low specific gravity. An inflammation which starts in the bladder of such a patient quickly extends up the dilated ureters to set up a pyelitis, and if relief is not afforded, the substance of the kidney is presently affected and a pyelonephritis is the result. It may be readily believed that a provision for the constant escape of the urine as fast as it reaches the bladder will do much to hinder or prevent this bacterial extension of the inflammation, and experience justifies this belief."

Consequently the practice of gradually emptying the overdistended bladder naturally gained favor and, in 1903, Guyon advised "to gradually and aseptically empty the overdistended bladder."

Thirty-four years of clinical experience and research have done little but confirm this trite observation so far as the advantages in respect to elimination are concerned. Until there is an unobstructed outlet, it is apparent that fluid intake as well as output must be limited; but once the outlet is rendered constantly open and unobstructed by use of a catheter the intake of fluid can be at once increased, and the better elimination of retained toxic substances can be brought about.

As a result of the definite improvement noted in those having diminished renal function and extensive infection, the idea became gradually fixed that all patients with obstruction at the neck of the bladder, accompanied by residual urine, should receive preoperative drainage of the bladder. This was usually accomplished by an inlying urethral catheter, and the idea became so firmly established in urologic minds that to attempt a prostatectomy without a period of preliminary drainage was looked upon as rank heresy. It was noted, however, that in the extremely debilitated this procedure did not always bring the desired results; and that if one wished to prepare the worst risks for operation it was, on the whole, safer to do a preliminary cystotomy and allow the patient to wait an indefinite period before undertaking the enucleation of the gland. Those who practiced this procedure were accused by their competitors of killing off the bad risks by suprapubic cystostomy and thus not being obliged to report them in their statistics of prostatectomy. However, it became evident to the thoughtful and observant that this method of treatment enlarged considerably the number of cases that were ultimately fit for operation, and Doctor Stevens, in charge of the Bellevue Hospital Urological Service, after adopting it as a routine procedure, lowered the mortality rate of prostatectomy in that hospital by more than 25 per cent. As a result, the two-stage prostatectomy became an accepted procedure for the poorer type of risk.

PRACTICE

It has always been difficult for the authors to understand why a surgical procedure, which is admittedly safer for the poorer risk, is not proportionally safer for the average case. We hear the same line of reasoning today among those who advocate resection for the extremely poor surgical risk, but reserve prostatectomy for the average case. Obviously multiple operations were not popular if a single operation could be made to do the work, and so every effort was made to prepare as many patients as possible by using an in-

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